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Intellectual Property Administration
P.O. Box 272400
Fort Collins, CO 80527-2400

EXAMINER

LOVELL, LEAH S

ART UNIT	PAPER NUMBER
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2885

MAIL DATE	DELIVERY MODE
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11/16/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/002,574

Applicant(s)

BRANSON ET AL.

Examiner

Leah S. Lovell

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 August 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 November 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 30 August 2007 has been entered.

Drawings

2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the rounded transition means between the interior reflecting surface of the hollow reflector means and the collimating reflector means must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and

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informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims 1, 10, 18 and 20 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. These claims have been amended to indicate that the first and second reflectors (or collimating reflector means) is "disposed on" the exit aperture. However, page 13, line 20 of the instant application's specification indicates that the collimating reflector means are "positioned adjacent" to the exit aperture.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claims 1-20 are rejected under 35 U.S.C. 102(e) as being anticipated by Haenen et al. (US 6,616,307).

Regarding claim 1, Haenen discloses an illumination system for illuminating a scan region on an object, comprising:

a hollow reflector [11] having an interior reflective surface [column 4, lines 55] and an exit aperture [in figure 2, the area between the two ends of the reflector 11 along the lower boundary of H_1 if the dotted line were to be continued across the lighting device; 10];

a light source [L_1] positioned within said hollow reflector [figure 2], said light source producing a plurality of light rays, some of the light rays produced by said light source being reflected by the interior reflective surface of said hollow reflector before passing through the exit aperture [column 4, lines 61-64];

a first reflector [3; in figure 2, to the left of the light source] disposed on a first side of the exit aperture of said hollow reflector; and

a second reflector [3; in figure 2, to the right of the light source] disposed on a second side of the exit aperture of said hollow reflector, said first and second reflectors being positioned in non-parallel [figure 2], spaced apart relation to one another, said first and second reflectors at least partially collimating light passing through the exit aperture of said hollow reflector to form a collimated beam [column 4, lines 65-67].

In regard to claim 2, Haenen discloses said hollow reflector [11] comprising a body having a generally cylindrically shaped interior wall that defines the interior reflective surface [column 4, lines 63-64] and wherein the exit aperture comprises a generally elongate axial opening in the interior wall of said body [figures 1 and 2; column 4, lines 57-64].

Regarding claim 3, Haenen discloses the interior reflective surface [11] of said hollow reflector comprising a diffusing reflecting surface [column 3, lines 31-46].

In regard to claim 4, Haenen discloses the interior reflective surface [11] of said hollow reflector is coated with a diffusing reflecting material [column 3, lines 31-46].

Regarding claim 5, Haenen discloses said light source [L₁] comprising a fluorescent lamp [column 5, line 25].

In regard to claim 6, Haenen discloses said first reflector [3; in figure 2, to the left of the light source] comprises a generally planar reflective surface [figure 2; the reflector substantially lies in a plane that runs in and out of the page].

Regarding claim 7, Haenen discloses said second reflector [3; in figure 2, to the right of the light source] comprises a generally planar reflective surface [figure 2; the reflector substantially lies in a plane that runs in and out of the page].

In regard to claim 8, Haenen discloses said first and second reflectors [3] comprise specular reflecting surfaces [column 3, lines 31-46].

In regard to claim 9, Haenen discloses said first and second reflectors [3] are coated with a specular reflecting material [column 3, lines 31-46].

Regarding claim 10, Haenen discloses an illumination system for illuminating a scan region on an object, comprising:

a body [11] having an interior wall defining a generally cylindrically shaped interior reflective surface [column 4, lines 55-64], the interior wall of said body also defining a generally elongate axial opening therein located at a first radial position on the interior wall of said body [figures 1 and 2];

a light source [L_1] positioned within the generally cylindrically shaped interior reflective surface defined by said body [figure 2];

a first reflector [3; in figure 2, to the left of the light source] disposed on a first side of the elongate axial opening defined by the interior wall of said body [figure 2]; and

a second reflector [3; in figure 2, to the right of the light source] disposed on a second side of the elongate axial opening defined by the interior wall of said body, said first and second reflectors being positioned in non-parallel [figure 2], spaced apart relation to one another, said first and second reflectors are at least partially collimating light passing through the exit aperture of said hollow reflector to form a collimated beam [column 4, lines 65-67]; and

wherein the first and second reflectors [3] form a sharp corner at a junction with the interior reflective surface of the body [column 4, lines 58-60 suggests that the first and second reflectors 3 are positioned such that the window 10, as defined by the reference, accounts for 10 to 70% of the total area of the window and housing; if positioned such that the window is accounting for 10-30% of the total area, a sharp corner will result between the reflector/interior reflective surface 11 and the first and second reflectors; see figure A provided below].

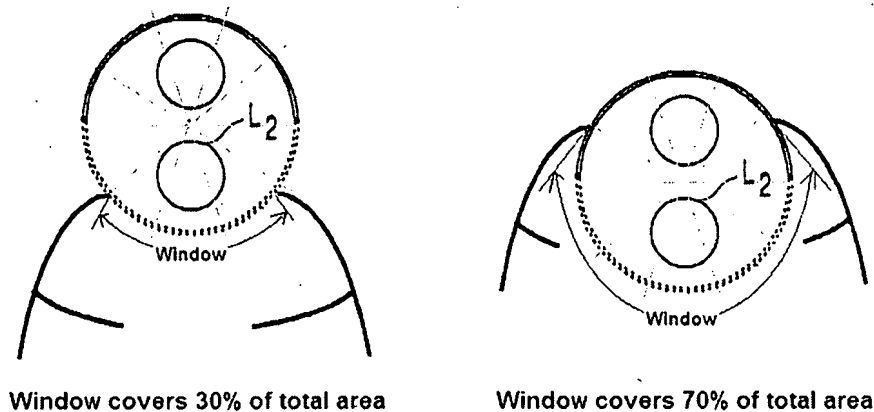


FIGURE A: Taken from figure 2 of Haenen and modified to illustrate the window [10] accounting for 30% and 70% of the total area of both the reflector [11] and window [10].

Regarding claim 11, Haenen discloses said light source [L₁] comprising a fluorescent lamp [column 5, line 25].

In regard to claim 12, Haenen discloses said first reflector [3; in figure 2, to the left of the light source] comprises a generally planar reflective surface [figure 2; the reflector substantially lies in a plane that runs in and out of the page].

In regard to claim 13, Haenen discloses said second reflector [3; in figure 2, to the right of the light source] comprises a generally planar reflective surface [figure 2; the reflector substantially lies in a plane that runs in and out of the page].

Regarding claim 14, Haenen discloses the interior reflective surface [11] of said hollow reflector comprising a diffusing reflecting surface [column 3, lines 31-46].

In regard to claim 15, Haenen discloses the interior reflective surface [11] of said hollow reflector is coated with a diffusing reflecting material [column 3, lines 31-46].

In regard to claim 16, Haenen discloses said first and second reflectors [3] comprise specular reflecting surfaces [column 3, lines 31-46].

In regard to claim 17, Haenen discloses said first and second reflectors [3] are coated with a specular reflecting material [column 3, lines 31-46].

Regarding claim 18, Haenen discloses an illumination system for illuminating a scan region on an object, comprising:

a hollow reflector [11, 3] having an interior reflective surface [column 4, lines 55] and an exit aperture [in figure 2, the exit aperture is along the upper line of reference numeral 33]

light source means [L₁] positioned within said hollow reflector means for producing a plurality of light rays [figure 2]; and

collimating reflector means [31, 32] disposed on the exit aperture defined by said hollow reflector means for at least partially collimating light exiting the exit aperture defined by said hollow reflector means to form a collimated beam [column 4, line 65-column 5, line 5]; and

rounded transition means [3] is provided between the interior reflecting surface of the hollow reflector means and the collimating reflector means for providing a diffusing reflective surface [figure 2; column 3, lines 31-46].

In regard to claim 19, Haenen discloses said collimating reflector means [31, 32] comprises first reflecting means [31] and second reflecting means [32] positioned in generally non-parallel, spaced-apart relation [figure 2].

Regarding claim 20, Haenen discloses a method for illuminating a scan region on an object, comprising:

providing a hollow reflector [11] having an interior reflective surface [column 4, lines 55] and an exit aperture [in figure 2, the area between the two ends

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of the reflector 11 along the lower boundary of H₁ if the dotted line were to be continued across the lighting device; 10];

disposing a collimating reflector [3] on at least one surface of the exit aperture of the hollow reflector and forming a junction between the collimating reflector and the interior reflecting surface [figure 2]; and

directing a plurality of light rays onto the interior reflecting surface of the hollow reflector, the interior reflecting surface reflecting some of the light rays through the exit aperture in the hollow reflector, the collimating reflector at least partially collimating light exiting the exit aperture in the hollow reflector to form a collimated beam [column 4, line 60-column 5, line 3].

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 1-9 are rejected under 35 U.S.C. 103(a) as being unpatentable by Zou et al. (US 6,186,649).

Regarding claim 1, Zou discloses an illumination system for illuminating a scan region on an object, comprising:

a hollow reflector [404] having an interior reflective surface [column 10, lines 27-28] and an exit aperture [408];

a light source [402] positioned within said hollow reflector [figure 12], said light source producing a plurality of light rays, some of the light rays produced by said light source being reflected by the interior reflective surface of said hollow reflector before passing through the exit aperture [column 10, lines 28-31];

a first reflector [420] disposed on a first side of the exit aperture of said hollow reflector [figure 12]; and

a second reflector [422] disposed on a second side of the exit aperture of said hollow reflector [figure 12], said first and second reflectors being positioned in non-parallel [figure 12], spaced apart relation to one another [figure 12], said first and second reflectors at least partially collimating light passing through the exit aperture of said hollow reflector to form a collimated beam [column 10, line 65-67].

Figure 12 does not disclose the first and second reflector within the first and second side of the exit aperture, respectively. However, Figure 10 of Zou discloses an optical structure (like that of figure 12) resting within the first and second sides of the exit aperture. It would have been obvious to one of ordinary skill in the art at the time of the invention to have the width [426] be just less than that of the width of the opening [414] such that the optical structure [416] rests between the first and second sides of the exit aperture. One would be motivated to do so to eliminate light lost between the output of the hollow reflector and the input of the optical structure allowing for a more efficient system.

In regard to claim 2, Zou discloses said hollow reflector [404] comprising a body having a generally cylindrically shaped interior wall that defines the interior reflective surface [figures 11 and 12] and wherein the exit aperture comprises a generally elongate axial opening in the interior wall of said body [figure 11].

Regarding claim 3, Zou discloses the interior reflective surface of said hollow reflector comprising a diffusing reflecting surface [column 5, lines 47-50].

In regard to claim 4, Zou discloses the interior reflective surface of said hollow reflector is coated with a diffusing reflecting material [figure 3].

Regarding claim 5, Zou discloses said light source comprising a fluorescent lamp [column 5, line 29].

In regard to claim 6, Zou discloses said first reflector comprises a generally planar reflective surface [column 10, lines 43-45].

Regarding claim 7, Zou discloses said second reflector comprises a generally planar reflective surface [column 10, lines 43-45].

In regard to claim 8, Zou discloses said first and second reflectors comprise specular reflecting surfaces [column 10, lines 61-64].

In regard to claim 9, Zou discloses said first and second reflectors are coated with a specular reflecting material [column 10, lines 61-64].

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Hsu (US 6,249,368) is cited as a light source module for a scanner having a substantially hollow reflector and a first and second reflector portions at an exit aperture of the hollow reflector.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Leah S. Lovell whose telephone number is (571) 272-2719. The examiner can normally be reached on Monday through Friday 7:45 a.m. until 4:15 p.m.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jong-Suk (James) Lee can be reached on (571) 272-7044. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Leah Lovell
Examiner
9 November 2007

/Y Quach Lee/
Primary Examiner, A. U. 2885